

Therapeutic Reviews

CLINICAL UPDATE

Scapulo-costal Syndrome

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INTRODUCTION

The scapulothoracic interface is made up of the anterior surface of the scapula and the posterior aspect of the thoracic cage. This space is occupied primarily by myofascial components. Upper extremity motion requires the movement of the scapula on the thoracic cage. To decrease friction between these two structures, the interface is lubricated by a serous fluid. Adhesions formation due to any number of reasons will result in loss of motion of the scapula on the respective thoracic cage. Such loss of motion predisposes to complete adhesive myofascitis, an exquisitely painful pathology. It is this phenomenon, the adhesive myofascitis that is referred to as scapulocostal syndrome. Scapulocostal syndrome is an often encountered, yet infrequently diagnosed cause of back and/or shoulder pain.

The following is a review of the literature outlining the aetiology, clinical features and management of scapulo-costal syndrome.

AETIOLOGY

Trauma, habitually faulty posture, prolonged immobilisation and repetitive activities (ie. over-reaching in rowing) have all been reported to be responsible for scapulocostal syndrome. Desk and visual display unit operators are especially predisposed to this condition. Prolonged sitting and poor posture cause tension traction and irritation at the attachment site of muscles predisposing to adhesions. A number of muscles have been implicated in causing scapulocostal syndrome, especially serratus anterior and posterior, levator scapulae and rhomboids.

CLINICAL FEATURES

The main finding is pain in the upper interscapular area between the medial border of the shoulder blade and the underlying rib cage. The onset is often insidious.

Discomfort and pain may radiate to the 1) neck and occiput 2) upper trapezius and deltoid insertions 3) around the chest to the anterior or 4) medial forearm and/or hands and fingers. The course is frequently chronic and characterised by remissions and exacerbations. A prominent clinical feature of this syndrome is the scapula and thoracic cage moving in unison rather than one upon the other, thus producing dyskinesia. Exquisite tenderness is a common clinical finding near the insertion of the levator scapula muscle. Pain may also originate from an enthesopathy of the serratus posterior superior muscle. Other clinical findings may include pain around the superior medial angle of the scapula, weak levator scapula or rhomboids with associated trigger points. Subscapularis, latissimus dorsi, teres major, rhomboid major and minor, serratus anterior and posterior, supraspinatus and trapezius are all muscles that may be implicated in the clinical features of this condition.

DIAGNOSIS

The diagnosis should be made after other scapulocostal syndromes (eg. thoracic outlet syndrome) and generalised disorders such as polymyositis and fibromyositis have been ruled out.

MANAGEMENT

Due to the exquisitely painful nature of this condition, treatment can sometimes be a challenge. The treatment of this condition involves some controversy. Regardless of the severity of the condition, a trial of conservative treatment is indicated before any surgical option is explored.

The first therapeutic modality involves the use of interferential current. The interferential current (IFC) is applied using the Davis procedure. The Davis procedure of interferential application involves the placement of electrodes approximately 1 inch peripheral to the respective scapula. The object of this electrode placement is to ensure the resulting interferential pattern is located within the potential space of the scapulothoracic interface. For best clinical results the IFC device should deliver a rectangular waveform with an average 25 microsecond pulse width and beat frequency of approximately 120 Hz. These electrical parameters will allow for the clinical application of as much as 60-70 ma of IFC to be applied. The major percentage of

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patients treated in this manner will experience an anaesthetic effect.

The next therapeutic intervention should be applied immediately after the interferential therapy to take full advantage of the anaesthesia. The scapula is usually found to be very adherent to the underlying thoracic wall and attempts to coax an examining finger under the scapula are met with resistance and pain. Scapula mobilisation is used in an attempt to break subscapular adhesions and scarring. The mobilisation should be applied in the side-lying position with the symptomatic scapular on the upside. These movements will normally be very painful, however the anaesthesia will allow much more latitude. Using a web contact on the inferior angle of the scapular and gripping the scapular spine, the scapula is moved into restricted positions. If the patient is comfortable with these movements, small high velocity low amplitude (HVLA) thrusts can be applied at extreme limits of movement.

Trigger points are often found at the attachment points of the levator scapular and rhomboid muscles into the scapula. It would seem logical that these trigger points be addressed with ischaemic pressure and other soft tissue techniques. Other scapula muscles must also be assessed for potential involvement and treated in a similar manner. These muscles include subscapularis, latissimus dorsi, teres major/minor, serratus anterior, supraspinatus and trapezius.

Generalised scapular stabilisation must also be assessed and addressed. This is best assessed via:

- 1) Shoulder abduction tests – looking for shoulder elevation before 45 degrees shoulder abduction. This would indicate overactive upper trapezius/levator scapulae and weak/inhibited lower scapular stabilisers.
- 2) Trunk lowering tests – if there are weak serratus anterior, winging of the scapula will be demonstrated.

Once muscular balance has been assessed, various strengthening and stretching exercises can be implemented.

Treatment of weak lower scapular stabilisers:

- 1) With the patient in a side-lying position, the lower scapula stabilisers can be facilitated by moving the scapula down and back. Firstly the practitioner can guide the movement this then progresses to the patient actively performing the movement and finally the patient resisting the movement.

- 2) Prone retraction exercises can then be used with (i) arms at side (ii) 90 degrees and (iii) arms overhead.
- 3) Floor/Wall angels can be prescribed for home exercise. The patient starts supine with the shoulder abducted to 80-90 degrees and little finger touching the floor. While maintaining a posterior pelvic tilt and without lifting the arm off the ground the arm is adducted to the side. This progress's to the wall position with heels together against the wall.

Treatment of short tight muscles:

- Muscle energy techniques can be applied to reciprocally inhibit the upper trapezius and levator scapula.

The final measure in the treatment of scapulo-costal syndrome is to address postural abnormalities/dysfunction. The so called sterno-symphyseal syndrome is best addressed by advising the patient of the Brugger relief position. The Brugger relief position is excellent in addressing cervical/thoracic/scapular dysfunction in the world of widespread computer usage. The patient must be advised of the consequences of faulty posture and educated in relation to the dietary and exercise requirements needed to live a healthy life.

Should the patient be unresponsive following at least a 6 month trial of these treatments, referral is recommended. The patient should be referred to an orthopaedic surgeon for possible reduction of existing adhesions under anaesthesia.

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